

WHAT IS CLAIMED IS:

1. An optical device, comprising:

an input leg;

an output leg, parallel to said input leg and separated by a horizontal connecting portion;

an angled partially reflective surface above said input leg; and

an angled reflective surface above said output leg.

2. The optical device as recited in claim 1 further comprising:

a lens integrated at a tip of said input leg.

3. The optical device as recited in claim 1 wherein,

said partially reflective surface is positioned on an angle to reflect light from said input leg to said reflective surface, and

said reflective surface is positioned on an angle to reflect light through said output leg.

4. The optical device as recited in claim 3 further comprising:

a light source to emit a beam in a vertical direction relative to a substrate into said input leg; and

a detector positioned on said substrate adjacent said laser to receive a portion of said beam from said output leg.

5. The optical device as recited in claim 4 wherein said horizontal distance is a distance spanning said light source and said detector positioned on said substrate.

6. The optical device as recited in claim 5 wherein said light source comprises a vertical cavity surface emitting laser (VCSEL).

7. The optical device as recited in claim 5 wherein said partially reflective surface comprises a splitter.

8. The optical device as recited in claim 7, further comprising:

an optical fiber to receive light passing through said partially reflective surface.

9. The optical device as recited in claim 1 wherein said input leg, said output leg, and said horizontal connecting portion comprise molded plastic.

10. The optical device as recited in claim 6 wherein further comprising:

a hermetic housing to package said optical device.

11. A method for monitoring a beam traveling orthogonal to a substrate, comprising:

positioning an input leg of a tap device over a light source on a substrate;

positioning an output leg of said tap device over a light detector on said substrate; and

reflecting a tapped portion of light from said light source traveling through said input leg to said output leg and onto said light detector.

12. A method for monitoring a beam as recited in claim 11, further comprising:

passing a portion of the beam from said input leg to a fiber;

reflecting the portion of said light from an first angled surface of said input leg to a second angled surface of said output leg; and

reflecting the tapped portion of light from said second surface through said output leg.

13. A method of monitoring a beam as recited in claim 11, further comprising:

forming said input leg and said output leg from an integral piece of molded plastic.

14. A method of monitoring a beam as recited in claim 13 further comprising:

forming a lens on an end of said input leg.

15. A method of monitoring a beam as recited in claim 12 wherein said tapped portion of light comprises approximately 10% of the beam.

16. A method of monitoring a beam as recited in claim 11, further comprising:
using signals from said light detector to control operating parameters of said light source.

17. An optical system, comprising:
a vertical cavity surface emitting laser (VCSEL) positioned on a substrate;
a light detector positioned adjacent said VCSEL on said substrate;
a monitoring assembly above said substrate, comprising:
an input leg over said VCSEL;
an output leg over said light detector, parallel to said input leg and separated by a horizontal connecting portion;
a partially reflective mirror on an angled top surface of said input leg; and
a mirror on an angled top surface of said output leg.

18. An optical system as recited in claim 17, further comprising:
a lens formed in an end of said input leg.

19. An optical system as recited in claim 17 wherein said monitoring assembly comprises molded plastic.

20. An optical system as recited in claim 19 further comprising:

a hermetic housing for packaging said substrate and said monitoring assembly.

21. An optical system as recited in claim 20 further comprising a fiber positioned over said partially reflective mirror.

22. An optical system as recited in claim 17 further comprising:

a controller for receiving signals from the light detector to control operating parameters of said VCSEL.